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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,103	11/14/2003	Scott David D'Souza	3464-Z	8220
<div>7590 12/18/2007</div> <div>Law Office of Jim Zegeer Suite 108 801 North Pitt Street Alexandria, VA 22314</div>				
			EXAMINER CHAI, LONGBIT	
			ART UNIT 2131	PAPER NUMBER
			MAIL DATE 12/18/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/712,103

Applicant(s)

D'SOUZA ET AL.

Examiner

Longbit Chai

Art Unit

2131

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 19-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. Currently pending claims are 1 – 18.

### *Response to Arguments*

2. Applicant's arguments with respect to instant claims have been fully considered but are moot in view of the new ground(s) of rejection necessitated by Applicant's amendment.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A person shall be entitled to a patent unless –

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

### **PART I**

3. Claims 1 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gai et al. (U.S. Patent 6,167,445), in view of Brustoloni (U.S. Patent 2003/0236999).

As per claim 1 and 10, Gai teaches an apparatus for providing priority queuing to packets at a network device in a communications network (Gai: Column 4 Line 14 – 20 and Column 9 Line 36 – 47: priority queues are used for managing network congestion control), comprising:

(i) a decision engine (Gai: Figure 5 / Element 512 and Column 10 Line 24 – 34: traffic management controller is qualified as a decision engine), at the network device, for receiving packets from the communications network and queuing each of the packets in a selected queue, wherein  $n$  queues having respective level of priority are available and  $n \geq 2$  (Gai: Figure 5 / Element 520, 522 & 532 and Column 10 Line 24 – 34 and Column 9 Line 41 – 43: multiple priority queues are used) in dependence upon a source address of the packet having a level of trust associated to the source address corresponding to the priority level of the selected queue (see **Brustoloni** below) & (Gai: Column 6 Line 27 – 30 / Line 48 – 57, Column 15 Line 50 – 54 and Figure 7C / Element 742 & 746: classification rules are used to associate differentiated services (DS) or quality of service (QoS) with different priorities of traffic management that corresponds QoS level to packets based on their source or destination addresses).

(ii) a scheduler (Gai: Figure 5 / Element 522 Column 10 Line 27 – 34) for de-queuing packets from the queues for transmission to the network device wherein packets from the queue are de-queued at different rates depending according to the respective priorities of the  $n$  queues (Gai: Column 2 Line 54 – 57, Column 6 Line 27 – 30 / Line 48 – 57, Column 15 Line 50 – 54 and Figure 7C / Element 742 & 746: (a) priority queues are used to traverse the packets at different speeds into the network (b) classification rules are used to associate differentiated services (DS) or quality of service (QoS) with different priorities of traffic management that corresponds QoS level to packets based on their source or destination addresses) & (Brock: Para [0009], Para [0028], Para [0012] Line 5 – 7, Para [0015] Line 10 – 25 and Para [0032]: by

monitoring the source address to prevent the denial of service attacks, a plurality of signature tables are created and ranked (with different classifications) based on likelihood of occurrence of malicious source devices and a null signature is added into the signature tables corresponding to non-malicious devices indicating no threat to the protected device.

However, Gai does not express explicitly whereby packets with source addresses recognized to be legitimate are serviced at a higher rate than packets with unknown source address or whose legitimacy is still to be proven.

Brustoloni teaches whereby packets with source addresses recognized to be legitimate are serviced at a higher rate than packets with unknown source address or whose legitimacy is still to be proven (Brustoloni: Para [0011] – [0012]: different service class (i.e. privileged or unprivileged class of service) is assigned to the packets based upon whether the source address can be recognized to be legitimate (i.e. trusted) or whose legitimacy is still to be proven (i.e. untrusted)).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Brustoloni within the system of Gai because (a) Gai teaches providing a mechanism to effectively allocate network resources and services when greater demands are being placed on the TCP-based network by using classification rules to associate different ranking (i.e. different classifications) that corresponds QoS level (i.e. class of services) to packets based on their source or destination addresses for intrusion detection systems (Gai: Column 5 Line 29 – 33, Column 6 Line 27 – 30 / Line 48 – 57, Column 15 Line 50 – 54 and Figure 7C / Element 742 & 746) and (b) Brustoloni teaches different service class (i.e. privileged or unprivileged class of service) is assigned to the packets based upon whether the source address can be recognized to be legitimate (i.e. trusted) or whose legitimacy is still to be proven (i.e. untrusted) (Brustoloni: Para [0011] – [0012]).

**PART II**

4. Claims 1 – 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gai et al. (U.S. Patent 6,167,445), in view of Brock et al. (U.S. Patent 2003/0110393).

As per claim 1 and 10, Gai teaches an apparatus for providing priority queuing to packets at a network device in a communications network (Gai: Column 4 Line 14 – 20 and Column 9 Line 36 – 47: priority queues are used for managing network congestion control), comprising:

(i) a decision engine (Gai: Figure 5 / Element 512 and Column 10 Line 24 – 34: traffic management controller is qualified as a decision engine), at the network device, for receiving packets from the communications network and queuing each of the packets in a selected queue, wherein n queues having respective level of priority are available and  $n \geq 2$  (Gai: Figure 5 / Element 520, 522 & 532 and Column 10 Line 24 – 34 and Column 9 Line 41 – 43: multiple priority queues are used) in dependence upon a source address of the packet (Gai: Column 6 Line 27 – 30 / Line 48 – 57, Column 15 Line 50 – 54 and Figure 7C / Element 742 & 746: classification rules are used to associate differentiated services (DS) or quality of service (QoS) with different priorities of traffic management that corresponds QoS level to packets based on their source or destination addresses).

However, Gai does not expressly explicitly in dependence upon a source address of the packet having a level of trust associated to the source address corresponding to the priority level of the selected queue.

Brock (combined with Gai) teaches in dependence upon a source address of the packet having a level of trust associated to the source address corresponding to the priority level of the

selected queue ((a) Brock: Para [0009], Para [0028], Para [0012] Line 5 – 7, Para [0015] Line 10 – 25 and Para [0032]: by monitoring the source address to prevent the denial of service attacks, a plurality of signature tables are created and ranked (with different classifications) based on likelihood of occurrence of malicious source devices and a null signature is added into the signature tables corresponding to non-malicious devices indicating no threat to the protected device and (b) Gai: Column 6 Line 27 – 30 / Line 48 – 57, Column 15 Line 50 – 54 and Figure 7C / Element 742 & 746: Gai teaches classification rules are used to associate different ranking (i.e. different classifications) with different priorities of queues that corresponds QoS level to packets based on their source addresses and thereby obviously, each of the n queues has an associated table with source addresses).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Brock within the system of Gai because (a) Gai teaches providing a mechanism to effectively allocate network resources and services when greater demands are being placed on the TCP-based network by using classification rules to associate different ranking (i.e. different classifications) that corresponds QoS level to packets based on their source or destination addresses for intrusion detection systems (Gai: Column 5 Line 29 – 33, Column 6 Line 27 – 30 / Line 48 – 57, Column 15 Line 50 – 54 and Figure 7C / Element 742 & 746) and (b) Brock teaches maximizing efficiency, in a denial of service prevention system, by monitoring the source address to prevent the denial of service attacks, a plurality of signature tables are created and ranked (with different classifications) based on likelihood of occurrence of malicious source devices and a null signature is added into the signature tables corresponding to non-malicious devices indicating no threat to the protected device because the vast majority of system events may pose no threat to the protected device

so that the system latency can be significantly decreased (Brock: Para [0012] Line 1 – 7, Para [0009], Para [0028], Para [0012] Line 5 – 7, Para [0015] Line 10 – 25 and Para [0032]).

(ii) a scheduler (Gai: Figure 5 / Element 522 Column 10 Line 27 – 34) for de-queuing packets from the queues for transmission to the network device wherein packets from the queue are de-queued at different rates depending according to the respective priorities of the n queues, whereby packets with source addresses recognized to be legitimate are serviced at a higher rate than packets with unknown source address or whose legitimacy is still to be proven (Gai: Column 2 Line 54 – 57, Column 6 Line 27 – 30 / Line 48 – 57, Column 15 Line 50 – 54 and Figure 7C / Element 742 & 746: (a) priority queues are used to traverse the packets at different speeds into the network (b) classification rules are used to associate differentiated services (DS) or quality of service (QoS) with different priorities of traffic management that corresponds QoS level to packets based on their source or destination addresses) & (Brock: Para [0009], Para [0028], Para [0012] Line 5 – 7, Para [0015] Line 10 – 25 and Para [0032]: by monitoring the source address to prevent the denial of service attacks, a plurality of signature tables are created and ranked (with different classifications) based on likelihood of occurrence of malicious source devices and a null signature is added into the signature tables corresponding to non-malicious devices indicating no threat to the protected device.

As per claim 2 and 11, Gai as modified teaches the network device is a local area network (LAN) (Gai: Column 1 Line 29 – 40).

As per claim 3 and 12, Gai as modified teaches each of said n queues has an associated classification of ranking with the source address of packets (Gai: Column 15 Line 50 – 54 and Figure 7C / Element 742 & 746, Column 6 Line 27 – 30 / Line 48 – 57) each of said n

queues has an associated table with source addresses ((a) Brock: Para [0009], Para [0028], Para [0012] Line 5 – 7, Para [0015] Line 10 – 25 and Para [0032]: by monitoring the source address to prevent the denial of service attacks, a plurality of signature tables are created and ranked (with different classifications) based on likelihood of occurrence of malicious source devices and a null signature is added into the signature tables corresponding to non-malicious devices indicating no threat to the protected device and (b) Gai: Column 6 Line 27 – 30 / Line 48 – 57, Column 15 Line 50 – 54 and Figure 7C / Element 742 & 746: Gai teaches classification rules are used to associate different ranking (i.e. different classifications) with different priorities of queues that corresponds QoS level to packets based on their source addresses and thereby obviously, each of the n queues has an associated table with source addresses).

As per claim 4 and 13, Gai as modified teaches said n associated tables have relative priority levels ranging from legitimate to unknown (Brock: Para [0032], Para [0015] Line 10 – 25, Para [0009] and Para [0028] Line 11 – 14 & Gai: Figure 7C / Element 742 & 746: monitoring the source address and creating a friend / good signature table corresponding to non-malicious devices with null signature indicating no threat to the protected device (considered as legitimate source ranking) and the source addresses to be blocked or filtered with least ranking of trusts are considered as an unknown / unauthorized source ranking).

As per claim 5 and 14, Gai as modified teaches certain legitimate source addresses can be pre-provisioned into the different tables according to their relative priorities (Brock: Para [00031] Line 5 – 11, Para [0009] and Para [0028] Line 11 – 14 & Gai: Figure 7C / Element 742 & 746: pre-provisioned into different signature tables by the 3<sup>rd</sup> party of manufacturer).

As per claim 6 and 15, Gai as modified teaches means to count source addresses and to place source addresses in a table having a legitimate classification after receiving N packets with the same source address, where N is a positive integer (Brock: Para [0015] Line 4 – 20 and Para [0009]: the source device does not pose threat to the protected device is added into the signature table and the occurrence data N must be positive (i.e. at least occur once) to meet the claim language).

As per claim 8 and 17, Gai as modified teaches the decision engine is operable to remove entries from the tables in accordance with the time that each of the entries has existed in those tables (Brock: Para [0015], Page 2, Right Column, Line 4 – 10: a null signature (i.e. an associated good / friend source device) may be removed after the expiration of a predetermined interval of time during which the associated signature event has not been detected, or after simply after a predetermined time).

As per claim 9 and 18, Gai as modified teaches the decision engine is operable to discard packets from the queues in accordance with a RED (Random Early Drop) algorithm (Gai: Column 4 Line 35 – 40).

5. Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gai et al. (U.S. Patent 6,167,445), in view of Brock et al. (U.S. Patent 2003/0110393), and in view of Devarakonda et al. (U.S. Patent 2001/0052024).

As per claim 7 and 16, Gai teaches each of said n queues has an associated classification of ranking with the destination address (besides the source address) of packets (Gai: Column 15 Line 50 – 54 and Figure 7C / Element 742 & 746, Column 6 Line 27 – 30 / Line

48 – 57). However, Gai does not disclose expressly an outgoing packet monitor to recognize TCP FIN packets and to instruct the decision engine to update the priority of the destination address of these TCP FIN packets and to put these addresses into the appropriate tables.

Devarakonda teaches an outgoing packet monitor to recognize TCP FIN packets and to instruct the decision engine to update the priority of the destination address of these TCP FIN packets and to put these addresses into the appropriate tables ((a) Devarakonda: Para [0026] Line 4 – 9 and Para [0027] Line 1 – 3: an affinity table (i.e. good table) is maintained upon the TCP FIN packet indicating the connection is closed and the affinity table includes the client, proxy, and the server node IP address (obviously including source and destination addresses) and (b) Gai: Column 15 Line 50 – 54, Column 6 Line 27 – 30 / Line 48 – 57 and Figure 7C / Element 742 & 746: Gai teaches classification rules are used to associate different ranking (i.e. different classifications) with different priorities of queues that corresponds QoS level to packets based on their destination addresses and thereby obviously, an outgoing packet monitor to recognize TCP FIN packets and to instruct the decision engine to update the priority of the destination address of these TCP FIN packets and to put these addresses into the appropriate tables).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Devarakonda within the system of Gai because (a) Gai teaches providing a mechanism to effectively allocate network resources and services when greater demands are being placed on the TCP-based network by using classification rules to associate different ranking (i.e. different classifications) that corresponds QoS level to packets based on their source or destination addresses for intrusion detection systems (Gai: Column 5 Line 29 – 33, Column 6 Line 27 – 30 / Line 48 – 57, Column 15 Line 50 – 54 and Figure 7C / Element 742 & 746) and (b) Devarakonda teaches improving efficiency, in a TCP-

based routing network, by providing an affinity table (i.e. good table) is maintained upon the TCP FIN packet indicating the connection is closed and the affinity table includes the client, proxy, and the server node IP address (obviously including source and destination addresses) so that the overhead for affinity routing and load balancing can be minimized (Devarakonda: Para [0020], Para [0026] Line 4 – 9 and Para [0027] Line 1 – 3).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Longbit Chai whose telephone number is 571-272-3788. The examiner can normally be reached on Monday-Friday 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R. Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Longbit Chai  
Examiner  
Art Unit 2131

LBC

CHRISTOPHER REVAK  
PRIMARY EXAMINER

